

## PATENT ABSTRACTS OF JAPAN

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(54) RECORDING AND REPRODUCING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a recording and reproducing device which enables a user to view even a program, which the user has forgot to input the reservations for video recording, reduces the labor and time for maintenance work and has the improved operability.

SOLUTION: In the recording and reproducing device, a hard disk 4a is partitioned to form two recording areas. One recording area is a user area where programs which the user wants to preserve are recorded, and the other is a buffering area 16 where programs broadcast from a selected broadcasting station are continuously recorded. Thus fragmentation of the buffering area 16 is surely prevented. Consequently, maintenance work like optimizing processing of the buffering area 16 is made unnecessary.

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## CLAIMS

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[Claim(s)]

[Claim 1] In the image transcription regenerative apparatus equipped with a receiving means to receive the program currently broadcast at the broadcasting station, an image transcription means to record on videotape the program received in the above-mentioned receive section to the record medium of a disk configuration, and a playback means to reproduce the program recorded on videotape to the above-mentioned record medium The above-mentioned record medium has two image

transcription fields of a user area and a buffering area. The above-mentioned image transcription means A keyword input means to input the keyword which has the continuation image transcription means which carries out the continuation image transcription of the program received with the above-mentioned receiving means to the above-mentioned buffering area, and is used for retrieval of a program, A selection means to search the program according to the keyword inputted as a race card receiving means to receive the race card currently broadcast at the broadcasting station, out of the program currently recorded by the above-mentioned buffering area on videotape using the above-mentioned race card, and to choose the corresponding program, The image transcription regenerative apparatus equipped with the re-recording drawing means which carries out the re-recording drawing of the program chosen with the above-mentioned selection means to the above-mentioned user area, and a buffering capacity setting means to set up the capacity of the above-mentioned buffering area.

[Claim 2] In the image transcription regenerative apparatus equipped with a receiving means to receive the program currently broadcast at the broadcasting station, an image transcription means to record on videotape the program received in the above-mentioned receive section to the record medium of a disk configuration, and a playback means to reproduce the program recorded on videotape to the above-mentioned record medium The above-mentioned record medium has two image transcription fields of a user area and a buffering area. The above-mentioned image transcription means A selection means to choose the program which has the continuation image transcription means which carries out the continuation image transcription of the program received with the above-mentioned receiving means to the above-mentioned buffering area, and is recorded by the above-mentioned buffering area on videotape, The image transcription regenerative apparatus equipped with the re-recording drawing means which carries out the re-recording drawing of the program chosen with the above-mentioned selection means to the above-mentioned user area.

[Claim 3] It is the image transcription regenerative apparatus according to claim 2 which is equipped with a keyword input means to input the keyword used for retrieval of a program, and has a means to search the program according to the keyword as which the above-mentioned selection means was inputted out of the program currently recorded by the above-mentioned buffering area on videotape.

[Claim 4] For the above-mentioned receiving means, the above-mentioned selection means is an image transcription regenerative apparatus according to claim 3 with which the program have a receiving means to receive the race card currently broadcast at the broadcasting station, and corresponding to the keyword using the above-mentioned race card is searched.

[Claim 5] The image transcription regenerative apparatus [ equipped with a buffering capacity setting means to set up the capacity of the above-mentioned buffering

area ] according to claim 2 to 4.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the image transcription regenerative apparatus which records on videotape the program currently broadcast at the broadcasting station to the record medium of the disk configuration in which random access is possible.

[0002]

[Description of the Prior Art] Conventionally, there was an image transcription regenerative apparatus which records on videotape the program currently broadcast at the broadcasting station on disks, such as a video tape and DVD. The common image transcription regenerative apparatus is equipped with the image transcription reservation function to record a program on videotape based on the image transcription reservation data by which an input setup is carried out. A broadcasting station (channel), image transcription start time, image transcription end time, etc. are included in image transcription reservation data.

[0003] By the way, in order to have recorded the program on videotape using the above-mentioned image transcription reservation function, based on the contents which investigated a broadcasting station, broadcasting hours, etc. with the newspaper, the magazine, etc., and investigated them about the program to record on videotape here, image transcription reservation entry-of-data setting actuation had to be performed, and there was a problem that this activity took time and effort. Especially, in the environment of the latest many channelization, it is an activity hard [ just to investigate a program to record on videotape ].

[0004] Then, the input of keywords, such as a program name and a performer, is received, the program according to the inputted keyword is searched and the equipment recorded on videotape is proposed (JP,11-232725,A, JP,11-187328,A, JP,10-98655,A). With this equipment, since it is not necessary to investigate a program to record on videotape with a newspaper, a magazine, etc., the time and effort of the user concerning image transcription reservation is reduced.

[0005]

[Problem(s) to be Solved by the Invention] However, in the conventional image transcription regenerative apparatus, it is not recorded on videotape about the program in which the user has left the input of the above-mentioned image transcription reservation data or a keyword. For this reason, the user might overlook

the program which wanted to view and listen to an input failure of the above-mentioned image transcription reservation data and a keyword owing to.

[0006] The image transcription regenerative apparatus which records the program currently broadcast by the channel chosen on the other hand on videotape to the hard disk continuously built in the body is proposed. If this equipment fills with the program which the hard disk recorded on videotape, the program received to the field to which the time oldest program is recorded on videotape will be recorded on videotape (it overwrites.). Therefore, if it is within the limits of the capacity of a hard disk, even if it is the program which has forgotten the input of the above-mentioned image transcription reservation data or a keyword, it can view and listen, without overlooking. Moreover, if there is a program (program to leave) to save in the program recorded by the hard disk on videotape, about the field where this program is recorded on videotape, the function (image transcription limit function) to restrict that a new program is recorded on videotape (overwrite) is prepared. For this reason, the program recorded by the hard disk on videotape can also be saved.

[0007] However, when the above-mentioned image transcription limit was performed, the image transcription field of the hard disk used for the image transcription of a program had to fragment, optimization processing etc. had to be performed to suitable timing, this maintenance took time and effort, and there was a problem that operability was not good.

[0008] The purpose of this invention is to offer the image transcription regenerative apparatus which reduced the time and effort which can view and listen even if it is the program which has forgotten the input for image transcription reservation, and a maintenance takes, and raised operability.

[0009]

[Means for Solving the Problem] The image transcription regenerative apparatus of this invention is equipped with the following configurations in order to solve the above-mentioned technical problem.

[0010] (1) In the image transcription regenerative apparatus equipped with a receiving means to receive the program currently broadcast at the broadcasting station, an image transcription means to record on videotape the program received in the above-mentioned receive section to the record medium of a disk configuration, and a playback means to reproduce the program recorded on videotape to the above-mentioned record medium The above-mentioned record medium has two image transcription fields of a user area and a buffering area. The above-mentioned image transcription means It had the continuation image transcription means which carries out the continuation image transcription of the program received with the above-mentioned receiving means to the above-mentioned buffering area, and has a selection means to choose the program currently recorded by the above-mentioned buffering area on videotape, and the re-recording drawing means which carries out re-recording drawing to the above-mentioned user area in the program chosen with

the above-mentioned selection means.

[0011] Even if it is the program which has forgotten image transcription reservation if it is within the limits of the capacity of a buffering area since the continuation image transcription of the program is carried out at a buffering area, it can view and listen with this configuration, without overlooking. Moreover, since the re-recording drawing of the program currently recorded by the buffering area on videotape with the re-recording drawing means and the selected program can be carried out to a user area, it can leave a program to save at the user area. Therefore, in a buffering area, it is not necessary to perform the conventional image transcription limit about the field where the program which carried out re-recording drawing to the user area is recorded on videotape. For this reason, fragmentation does not arise in a buffering area, a maintenance of the optimization processing to a buffering area etc. becomes unnecessary, and an actuation student improves.

[0012] (2) Having a keyword input means to input the keyword used for retrieval of a program, the above-mentioned selection means has a means to search the program according to the keyword inputted out of the program currently recorded by the above-mentioned buffering area on videotape.

[0013] With this configuration, the re-recording drawing of the program which corresponds to the inputted keyword about the program currently recorded by the buffering area on videotape is carried out to a user area. For this reason, a user needs to investigate the program currently recorded by the buffering area on videotape neither with a newspaper nor a magazine.

[0014] (3) The above-mentioned receiving means is equipped with a receiving means to receive the race card currently broadcast at the broadcasting station, and the above-mentioned selection means searches the program according to a keyword using the above-mentioned race card.

[0015] With this configuration, if the program currently recorded on videotape in the buffer area is searched and there is a corresponding program based on a program name, a performer, etc. who were inputted as a keyword, re-recording drawing will be carried out to a user area.

[0016] In addition, about the race card of a broadcasting station, it is acquirable because the ADMS-EPG broadcaster is carrying out distribution service and receives this, for example.

[0017] (5) It has a buffering capacity setting means to set up the capacity of the above-mentioned buffering area.

[0018] With this configuration, a user can set up the capacity of a buffering area according to his user-friendliness. It can record on videotape, without specifically carrying out image transcription reservation of more programs, if a buffering area is set up greatly, and many programs can be saved if a buffering area is set up small (if a user area is set up greatly).

[0019]

[Embodiment of the Invention] Drawing 1 is the block diagram showing the configuration of the image transcription regenerative apparatus which is the operation gestalt of this invention. The control section 2 by which the image transcription regenerative apparatus 1 of this operation gestalt controls actuation of a body, The receive section 3 which receives the program which the broadcasting station is broadcasting, and the image transcription playback section 4 which reproduces the program recorded on videotape while recording on videotape the program received in the receive section 3, It has the output section 5 which outputs the video signal (a sound signal is included) reproduced in the image transcription playback section 4, and the remote control receive section 6 which receives the control signal transmitted from the remote control unit 11 which operates a body by remote control. [0020] The image transcription playback section 4 has hard disk 4a as a record medium. The program which the receive section 3 received to hard disk 4a is recorded on videotape (the video signal and sound signal of a program are recorded.). Television 10 is connected to the output section 5 as an indicating equipment. A remote control unit 11 transmits a control signal to image transcription regenerative-apparatus 1 body using infrared radiation.

[0021] The receive section 3 has the tuner for receiving the program which the broadcasting station chosen from two or more broadcasting stations is broadcasting. In addition, you may constitute so that the program of two or more games can be received to coincidence. Moreover, the receive section 3 also has the function to receive the race card (to refer to drawing 2 ) of each broadcasting station where the ADMS-EPG broadcaster is offering distribution service. Information, such as a program name, a performer, and broadcasting hours, is included in this race card for every broadcasting station.

[0022] Furthermore, hard disk 4a partitioned and divides it into the partition (only henceforth a user area 15) used as a user area, and the partition (only henceforth a buffering area 16) used as a buffering area (refer to drawing 3 ). A user area 15 is a field for recording on videotape the program which a user wants to save (preservation), and a buffering area 16 is a field for recording the program which the broadcasting station chosen is broadcasting on videotape continuously.

[0023] In addition, if the image transcription regenerative apparatus 1 fills with the program which the buffering area 16 recorded on videotape, the program received to the field to which the time oldest program is recorded on videotape will be recorded on videotape (it overwrites.). Therefore, it is being continued by recording a buffering area 16 the program for the time amount according to the capacity on videotape.

[0024] Moreover, about the capacity of a user area 15 and a buffering area 16, a user can set up freely. More programs can be saved if capacity of a user area 15 is enlarged. On the other hand, if a buffering area 16 is enlarged, it leaves the program (image transcription data) broadcast at the selected broadcasting station longer time, and it can be set. A user should just set up the capacity of a user area 15 and a

buffering area 16 according to his user-friendliness. You may enable it to perform this setup by the control unit (un-illustrating) prepared in the body, and may enable it for a remote control unit 11 to perform it.

[0025] Hereafter, actuation of the image transcription regenerative apparatus 1 of this operation gestalt is explained.

[0026] The image transcription regenerative apparatus 1 of this operation gestalt receives the program currently broadcast at the broadcasting station (channel) always chosen in the receive section 3, and records this on videotape to a buffering area 16. In addition, you may be one about the channel which can be chosen and may be plural. When two or more channels are chosen, the program currently broadcast by all the channels chosen is recorded on videotape.

[0027] If it fills with the program which the buffering area 16 recorded on videotape, the program received in the receive section 3 will be recorded on videotape to the field to which the time oldest program is recorded on videotape (it overwrites).

Therefore, it is being continued by recording a buffering area 16 the program broadcast by the channel chosen into the time amount according to the capacity on videotape.

[0028] Moreover, the image transcription regenerative apparatus 1 is memorized in the memory in which program information including a program name, a performer, broadcast start time, broadcast end time, etc. was prepared by the control section 2 about the program currently recorded by the buffering area 16 on videotape. This program information is acquired by the approach shown below.

[0029] The image transcription regenerative apparatus 1 received the race card (refer to drawing 2) of each broadcasting station which the ADMS-EPG broadcaster etc. has distributed to suitable timing in a receive section 3, and has memorized it in memory by making into program information the race card of the broadcasting station currently recorded on videotape to the buffering area 16. Moreover, lessons was taken from the unnecessary program information memorized in memory, and the program information on the program which a new program is overwritten and is not recorded by the buffering area 16 on videotape, and it has eliminated. This is stopping storage capacity required in order to memorize the above-mentioned program information in memory.

[0030] Moreover, the image transcription regenerative apparatus 1 of this operation gestalt can record on videotape the program received in the receive section 3, even if the program currently recorded by the buffering area 16 on videotape is being reproduced. Therefore, a user can view and listen also to the program currently broadcast during image transcription playback later.

[0031] Next, the actuation when carrying out the re-recording drawing of the program currently recorded by the buffering area 16 on videotape to a user area 15 is explained.

[0032] The mode of operation of image transcription regenerative-apparatus 1 body is



made into re-recording drawing mode. In addition, the program which has received in the receive section 3 also at this time is recorded on videotape to the buffering area 16.

[0033] Drawing 4 is a flow chart which shows the actuation in re-recording drawing mode. The image transcription regenerative apparatus 1 waits to input either of the display demands of the program information on the program which a keyword is inputted or is recorded by the buffering area 16 on videotape (s1, s2). In addition, the input to the image transcription regenerative apparatus 1 can be performed in the control unit (un-illustrating) of a remote control unit 11 or a body.

[0034] It searches whether the image transcription regenerative apparatus 1 has a program according to the keyword inputted into the program currently recorded by the buffering area 16 on videotape, when a keyword is inputted (s3). Here, the keywords which a user inputs into the image transcription regenerative apparatus 1 are a program name, a performer, broadcasting hours, etc. Moreover, the image transcription regenerative apparatus 1 has memorized the race card in memory about the program currently recorded by the buffering area 16 on videotape as mentioned above. It searches whether there is any program according to the keyword inputted into the program currently recorded by the buffering area 16 on videotape using this race card.

[0035] In retrieval of s3, if there is a program according to the inputted keyword, the re-recording drawing which writes the image transcription data of this program in the free area of a user area 15 will be performed (s4, s5). In addition, as long as there is not sufficient free area for a user area 15, it may be made to perform error processing of displaying that.

[0036] Thus, a user only inputs a keyword, in the program currently recorded by the buffering area 16 on videotape, can do the re-recording drawing of the desired program to a user area 15, and can save it at it. In addition, the field where the program by which re-recording drawing was carried out in the buffering area 16 is recorded on videotape is someday used for the image transcription of a new program. The program currently recorded by the user area 15 on videotape is saved until the erase command by the user is inputted.

[0037] On the other hand, if the image transcription regenerative apparatus 1 has the display demand of the race card instead of a keyword, it will output the race card of all the programs currently recorded by the buffering area 16 on videotape from the output section 5 using the race card memorized in memory (s2 →s6). The race card outputted by s6 is displayed in television 10.

[0038] A user checks the race card currently displayed on television 10, and judges whether there is any program to save in the program currently recorded by the buffering area 16 on videotape. If there is a program to save, and there is nothing, the alter operation deed which makes this program a re-recording drawing program, and specifies it, and alter operation which is that will be performed.

[0039] The image transcription regenerative apparatus 1 will record the specified program on videotape to a user area 15, if assignment of a re-recording drawing program is received by s7 (s8). . In addition, when it is the input of a purport without a re-recording drawing program, this processing is ended, without processing s8.

[0040] Thus, with the image transcription regenerative apparatus 1 of this operation gestalt, the program currently recorded by the buffering area 16 on videotape can be checked by the outputted race card. Moreover, in the program currently recorded by the buffering area 16 on videotape, the re-recording drawing of the specific program can be carried out to a user area 15, and it can also be saved at it.

[0041] Moreover, since a program is recorded by the buffering area 16 on videotape irrespective of the existence of image transcription reservation so that clearly from above-mentioned explanation, it can save at a user area 15 by being able to view and listen later, even if it is the program which has forgotten image transcription reservation, and performing above-mentioned re-recording drawing processing.

[0042] Furthermore, hard disk 4a is partitioned, and since it divided into the user area 15 which saves a program, and the buffering area 16 which records on videotape the program received in the receive section 3 continuously, it can prevent certainly that fragmentation arises in a buffering area 16. Therefore, a maintenance of optimization processing etc. can become unnecessary to a buffering area 16, and user-friendliness can be raised.

[0043] In addition, the image transcription regenerative apparatus 1 of this operation gestalt can also perform the image transcription of the program by image transcription reservation. In this case, what is necessary is just to record a program on videotape to the free area of the direct user area 15.

[0044]

[Effect of the Invention] As mentioned above, since the user area which saves a program in the record medium of a disk configuration, and the buffering area which records the received program on videotape continuously were made into a different field according to this invention, it can prevent certainly that fragmentation arises in a buffering area. Therefore, a maintenance of the optimization processing to a buffering area etc. can become unnecessary, and user-friendliness can be raised.

[0045] Moreover, since the re-recording drawing of the program currently recorded by the buffering area on videotape can be carried out to a user area, preservation of a desired program can also be performed easily.

[0046] Furthermore, since a user can set up capacity of a buffering area according to his user-friendliness, user-friendliness can be raised further.

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[Brief Description of the Drawings]

[Drawing 1] It is drawing showing the configuration of the image transcription regenerative apparatus which is the operation gestalt of this invention.

[Drawing 2] It is drawing showing a race card.

[Drawing 3] It is drawing explaining the record section of a hard disk.

[Drawing 4] It is the flow chart which shows re-recording drawing processing of the image transcription regenerative apparatus which is the operation gestalt of this invention.

[Description of Notations]

1-image transcription regenerative apparatus

2-control section

3-receive section

4-image transcription playback section

4a-hard disk

5-output section

6-remote control receive section

10-television

11-remote control unit

15-user area

16-buffering area

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